

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of:

Albert Chenouda Salib, et al.

Serial No.: 10/619,051

Group Art Unit: 3661

Filed: 07/14/2003

Examiner: Beaulieu, Yonel

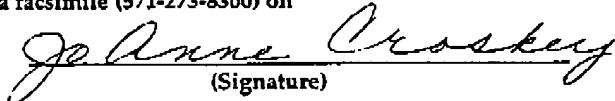
For: SYSTEM AND METHOD FOR SENSITIZING THE ACTIVATION  
CRITERIA OF A ROLLOVER CONTROL SYSTEM

Docket No: 81091642

I hereby certify that this correspondence is being transmitted to Examiner Yonel Beaulieu with  
the United States Patent and Trademark Office via facsimile (571-273-8300) on

July 20, 2006  
(Date of Deposit)

Jo Anne Croskey

  
(Signature)

REPLY BRIEF TO THE REVISED EXAMINER'S ANSWER

Mail Stop Appeal Brief-Patent  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

Appellants submit this Reply Brief in response to the Revised Examiner's  
Answer dated May 24, 2006.

**REMARKS**

In response to the Revised Examiner's Answer and associated arguments, Appellants respectfully request the Board to consider the following rebuttal.

In the last paragraph of page 4, the Examiner points to the roll rate sensor 34 in Figure 1 and to col. 3, lines 5-37, and col. 4, line 56 through col. 5, line 1 of Chubb (U.S. Pat. No. 6,593,849 B2) for such reliance. Although a roll condition is set forth, no specific teaching is set forth in the stated Figure or sections of Chubb, for determining the relative roll angle. Applicants note that roll rate is clearly different than roll angle. Roll rate refers to the rate at which a vehicle is rolling, whereas roll angle refers to the specific rotation angle of a vehicle at an instance in time. The relative roll angle is specifically set forth and defined in the specification of the present application and is shown in Figure 2 of the present application. The relative roll angle is the roll angle between the body and the axle or axis of the wheels.

Regardless of whether roll angle is determined by the system of Chubb, the system of Chubb clearly fails to teach or suggest the two step process of claim 1, the threshold monitoring of claim 1, the initiation of a wheel departure angle determination, and the performance of such initiation in response to a threshold being reached.

Claim 1 is essentially a two-step process. First, the relative roll angle is determined. As was recognized by the inventors of the present invention, the relative roll angle provides some indication as to the vehicle potentially rolling over. When the relative roll angle reaches a threshold, the wheel departure angle determination is initiated. The wheel departure angle is the angle between the axis of the wheels and the road. The safety system of the vehicle is controlled in response to the wheel departure angle. Those skilled in the art will recognize the advantage of the present invention. A rollover event may take place in a relatively short amount of time. As is shown in the present application, various

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sensors are monitored to determine the roll state of the vehicle. A considerable amount of processing power is used for these determinations. The present invention advantageously allows the relative roll angle to be determined and then when that relative roll angle reaches the threshold the wheel departure angle determination is initiated. Therefore, the important processing resource is not used until it is required.

In the first paragraph on page 5 of the Examiner's Answer, the Examiner disagrees with Appellants' argument that a threshold is not taught. The Examiner points to the abstract for a threshold. Appellants agree that the last sentence of the abstract states, "Wheel lift is indicated when at least one of the normal forces for each of the plurality of wheels is less than a normal force threshold." The threshold stated in the Abstract and elsewhere in Chubb is not a relative roll angle threshold. Also, when the normal forces are less than the threshold, the wheel lift is indicated, the wheel departure angle is not determined. Furthermore, the present invention requires that the wheel departure angle be determined when the relative roll angle reaches a threshold, not when the relative roll angle is less than a threshold.

The Chubb reference is primarily concerned with normal forces on the particular wheel. When the normal force is less than a threshold, i.e., less weight is on that side of the vehicle, the wheel may be lifted. No teaching is provided in Col. 1, line 56 through Col. 2, the abstract, or Col. 5, lines 52-58, for a relative roll angle threshold.

The indication of wheel lift by Chubb is different than determining wheel departure angle. In indicating wheel lift, as described in Chubb, one is indicating that the normal forces on a wheel are approximately zero, thus inferring that the wheel is in a condition to be lifted off of the ground. In indicating wheel lift, Chubb does not determine the wheel departure angle.

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On page 5 of the Examiner's Answer, the Examiner disagrees with Appellants' argument that no wheel departure angle is determined. The Examiner states, "The Examiner disagrees because item 18 in fig. 1 of Chubb performs such a control upon determination of the wheel departure (lift)." Item 18 is a controller, which indicates when a wheel has or is in a condition to be lifted. Again, no determination of the wheel departure angle is set forth. Although lift is determined by looking at the normal loading on the wheel, no teaching or suggestion is set forth for determining the actual wheel departure angle. Wheel departure angle provides additional information over simply that a wheel is in a condition to be lifted. Besides wheel lift is not indicated in Chubb when a roll angle has reached a threshold, but rather when normal forces are less than a threshold.

Accordingly, Chubb fails to teach or suggest a majority, if not all, of the elements of claim 1. Therefore, claims 2-7 are independently patentable and allowable for at least the above-stated reasons.

With respect to claim 8, the Examiner, in the last paragraph of page 5 of the Examiner's Answer, states that double wheel lift is taught by Chubb. Appellants submit that regardless of whether double wheel lift detection is disclosed and/or detected, Chubb clearly fails to teach or suggest boosting a roll signal for control in response to double wheel lift. The boosting of a roll signal and the boosting of a roll signal in response to double wheel lift is not stated or suggested anywhere in Chubb. Appellants agree that double wheel lift is illustrated in the Chubb reference and that double wheel lift may be determined. What is not shown in the Chubb reference is boosting the roll signal for control in response to the double wheel lift. That is, claim 8 implies that a single wheel lift may have a certain amount of control and if there is double wheel lift more control is added. Figure 1 of Chubb merely shows a vehicle with two side wheels lifted off of the ground. Col. 2, lines 44-46, of Chubb merely states that

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the vehicle shown in Figure 1 has two wheels that are lifted. Neither Figure 1 nor the stated section discloses the limitation as claimed.

With respect to claim 9, the Examiner's Answer, in the first paragraph of page 6, the Examiner disagrees with the argument that Chubb does not teach vehicle bouncing. Claim 9 recites the limitations of determining that a vehicle may be bouncing and in response thereto holding brake pressure. No specific teaching of bouncing or recognition of bouncing is set forth in Chubb. The control action of Claim 9 recognizes that it may be desirable to maintain brake pressure when a vehicle is bouncing so as to bring the vehicle back under control. When using the system described in the Chubb reference, control or brake pressure may be applied and removed during vehicle bouncing. Thus, Claim 9 specifically tries to circumvent the application and removal of brake pressure by holding the brake pressure.

The Examiner's Answer states that the Examiner appears to interpret the term "bouncing" as or "vehicle bouncing" as "vehicle tilt" or "vehicle rollover". Applicants submit that such an interpretation is improper, inconsistent with the specification of the present invention, is inconsistent with the plain and ordinary meaning of the term "bouncing", and is inconsistent with the claims.

In paragraph [0068], with respect to step 134, the present application states when a vehicle has a very large roll angle together with a large roll rate magnitude during a last second, the vehicle will be in a potential bouncing mode. This relationship is not stated or suggested anywhere in Chubb. Also the detection of a vehicle tilt or vehicle roll over condition does not imply the detection of a large roll angle and a large roll rate magnitude, or the presence of the same in a last second. A vehicle may be experiencing a roll over condition and not be bouncing.

Also, the plain and ordinary meaning of the term "bouncing" typically refers to a series of impacts and rebounds. To suggest that bouncing refers only

to vehicle tilting, body lift, or wheel lift is inconsistent and is not a reasonable inference. To simply lift without an impact or a rebound does not correlate with the term bouncing. The present application recognizes that a bouncing action may occur in certain situations, in which case a constant brake pressure would be desired.

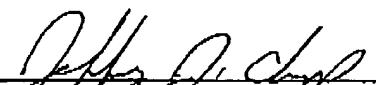
Note that claim 9 recites the limitation of applying brake pressure to counteract rollover and in response to bouncing holding the brake pressure. In so stating claim 9 at least implies that bouncing is different than rollover. The brake pressure is held in response to bouncing, not in response to roll over.

In view of the above comments and the comments set forth in the Appeal Brief, Appellants respectfully request the Board to reverse the Examiner's position with respect to each and every claim and pass the case to issue forthwith.

In light of the above remarks, Applicants submit that all objections and rejections are now overcome. The application is now in condition for allowance and expeditious notice thereof is earnestly solicited. Should the Examiner have any questions or comments, she is respectfully requested to call the undersigned attorney.

Respectfully submitted,

**ARTZ & ARTZ, P.C.**

  
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